CONFERENCE ON DISARMAMENT

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Report of the Ad Hoc Committee on a Nuclear Test Ban

I. INTRODUCTION

1. At its 582nd plenary meeting on 14 February 1991, the Conference on Disarmament adopted the following decision on the re-establishment of an ad hoc committee under item 1 of its agenda entitled "Nuclear Test Ban" (CD/1060):

> "In the exercise of its responsibilities as the multilateral disarmament negotiating forum in accordance with paragraph 120 of the Final Document, the Conference on Disarmament decides to re-establish an Ad Hoc Committee under item 1 of its agenda entitled "Nuclear Test Ban".
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> The Conference requests the Ad Hoc Committee to initiate, as a first step towards achieving a nuclear test ban treaty, substantive work on specific and interrelated test ban issues, including structure and scope as well as verification and compliance.
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> Pursuant to its mandate, the Ad Hoc Committee will take into account all existing proposals and future initiatives. In addition, it will draw on the knowledge and experience that have been accumulated over the years in the consideration of a comprehensive test ban in the successive multilateral negotiating bodies and the trilateral negotiations.
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> The Conference also requests the Ad Hoc Committee to examine the institutional and administrative arrangements necessary for establishing, testing and operating an international seismic monitoring network as part of an effective verification system of a nuclear test ban treaty. The Ad Hoc Committee will also take into account the work of the Ad Hoc Group of Scientific Experts to Consider International Co-operative Measures to Detect and Identify Seismic Events.
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> The Ad Hoc Committee will report to the Conference on Disarmament on the progress of its work before the conclusion of the 1991 session."

II. ORGANIZATION OF WORK AND DOCUMENTATION

2. At that same plenary meeting on 14 February 1991, the Conference on Disarmament appointed Ambassador I.S. Chadha of India as Chairman of the Ad Hoc Committee. Mr. Michael Cassandra of the United Nations Department of Disarmament Affairs served as Secretary.

3. A delegation of a nuclear weapon State did not participate in the work of the Ad Hoc Committee. A number of delegations regretted this absence and expressed the hope that it would reconsider its position at an early date.

4. The Ad Hoc Committee held 17 meetings from 21 February to 22 August 1991. In addition, the Chairman conducted a number of informal consultations with delegations.

5. At their request, the representatives of the following 24 States not Members of the Conference were invited to participate in the work of the Ad Hoc Committee: Angola, Austria, Cameroon, Chile, Colombia, Costa Rica, Denmark, Finland, Greece, Holy See, Ireland, Jordan, Malaysia, New Zealand, Norway, Oman, Spain, Switzerland, Syrian Arab Republic, Turkey, United Arab Emirates, Uruguay, Vietnam and Zimbabwe.

6. The following official documents dealing with a nuclear test ban were presented to the Conference:

- CD/1054, dated 4 February 1991, submitted by Indonesia, Mexico, Peru, Venezuela, Yugoslavia and Sri Lanka entitled "Letter dated 4 February 1991 from the Representatives of Indonesia, Mexico, Peru, Venezuela, Yugoslavia and Sri Lanka addressed to the President of the Conference on Disarmament transmitting Draft Protocol II of Amendment to the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water."

- CD/1060, dated 14 February 1991, entitled "Mandate for an ad hoc committee under agenda item 1."

- CD/1066, dated 8 March 1991, submitted by the delegation of the United States, entitled "Letter dated 28 February 1991 from the Representative of the United States of America addressed to the President of the Conference on Disarmament transmitting the text of the 1974 Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Underground Nuclear Weapon Tests, together with its Protocol."

- CD/1067, dated 8 March 1991, submitted by the delegation of the United States, entitled "Letter dated 28 February 1991 from the Representative of the United States of America addressed to the President of the Conference on Disarmament transmitting the text of the 1976 Treaty between the United States of America and the Union of Soviet Socialist Republics on Underground Nuclear Explosions for Peaceful Purposes, together with its Protocol."

- CD/1068, dated 8 March 1991, submitted by the delegation of the Union of the Soviet Socialist Republics, entitled "Letter dated 28 February 1991 from the Representative of the Union of Soviet Socialist Republics addressed to the President of the Conference on Disarmament transmitting the text of the 1974 Treaty between the Union of Soviet Socialist Republics and the United States of America on the Limitation of Underground Nuclear Weapon Tests, together with the Protocol thereto."

- CD/1069, dated 8 March 1991, submitted by the delegation of the Union of the Soviet Socialist Republics, entitled "Letter dated 28 February 1991 from the Representative of the Union of Soviet Socialist Republics addressed to the President of the Conference on Disarmament transmitting the text of the 1976 Treaty between the Union of Soviet Socialist Republics and the United States of America on Underground Nuclear Explosions for Peaceful Purposes, together with the Protocol thereto."

- CD/1081, (also issued as CD/NTB/WP.13), dated 11 June 1991, submitted by the delegations of Australia and New Zealand, entitled "Verification of a Comprehensive Test Ban."

- CD/1089, (also issued as CD/NTB/WP.14), dated 31 July 1991, submitted by the delegation of Sweden, entitled "Letter dated 9 July 1991 from the Head of the Swedish Delegation addressed to the Secretary-General of the Conference on Disarmament transmitting the text of a Draft Comprehensive Test-Ban Treaty and its annexed Protocols."

- CD/1094, dated 7 August 1991, submitted by the delegation of Canada, entitled "Letter dated 2 August 1991 from the Permanent Representative of Canada addressed to the Secretary-General of the Conference on Disarmament transmitting the Arms Control Verification Occasional Paper No. 8, entitled 'Nuclear Test Ban Verification: Recent Canadian Research in Forensic Seismology'."

In addition, the following working papers were presented to the Ad Hoc Committee:

- CD/NTB/WP.13 (also issued as CD/1081).

- CD/NTB/WP.14 (also issued as CD/1089).

The following conference room papers were before the Ad Hoc Committee:

- CD/NTB/CRP.9, dated 25 February 1991, entitled "Indicative Schedule of Meetings".

- CD/NTB/CRP.10, dated 12 March 1991, submitted by the delegation of Mexico, entitled "Working paper on the link between the provisions of the NPT regarding nuclear disarmament measures and those regarding the review conferences and the limited duration of the Treaty."

- CD/NTB/CRP.11/Rev.1, dated 16 May 1991, submitted by the Chair, entitled "Chairman's Summary of General Debate."

- CD/NTB/CRP.12, dated 31 May 1991, prepared by the Secretariat, entitled "Composite Paper containing elements of Multilateral Treaties relating to Nuclear Explosions for Peaceful Purposes (PNES)."

- CD/NTB/CRP.13, dated 13 June 1991, submitted by the Chair, entitled "Chairman's Summary on Structure and Scope."

- CD/NTB/CRP.14/Rev.1, dated 6 August 1991, submitted by the Chair, entitled "Chairman's Summary on Verification and Compliance."

- CD/NTB/CRP.15/Rev.2, dated 20 August 1991, entitled "Draft Report of the Ad Hoc Committee on a Nuclear Test Ban."

Furthermore, upon the request of the Ad Hoc Committee, the Secretariat compiled a paper containing the three Terms of reference of the Ad Hoc Group of Scientific Experts to Consider International Co-operative Measures to Detect and Identify Seismic Events (CD/NTB/INFORMAL of 11 June 1991).

III. SUBSTANTIVE WORK DURING THE 1991 SESSION

7. At its first meeting on 21 February 1991, the Ad Hoc Committee decided to organize its work based on the items contained in its mandate. The matrix prepared by the Chairman of the Ad Hoc Committee in 1990 served as an unofficial guide to discussions throughout the session. A same number of meetings were devoted to the following three items: general debate; structure and scope; and verification and compliance (see Indicative Schedule of Meetings, CD/NTB/CRP.9). Furthermore, in accordance with its mandate, to also take into account the work of the Ad Hoc Group of Scientific Experts to Consider International Co-operative Measures to Detect and Identify Seismic Events, the Ad Hoc Committee invited the Ad Hoc Group to a meeting on 1 August 1991.

8. The report is structured along the lines agreed by the Ad Hoc Committe in its division of labour and views of delegations are reflected under the three main items considered. In order to assist the Ad Hoc Committee, and strictly on his own behalf, the Chairman presented summaries of the debates on the three main topics (see CD/NTB/CRP.11/Rev.1, CRP.13 and CRP.14/Rev.1). These summaries were neither endorsed nor discussed by the Ad Hoc Committee.

9. The work of the Ad Hoc Committee took place in the light of the many views that had been expressed in plenary meetings of the Conference throughout the 1991 session as contained in its official records.

General Debate

10. Many views were expressed on general issues related to a nuclear test ban both during the four meetings the Ad Hoc Committee devoted to general debate and throughout the remaining meetings. The comments made during the general debate on structure and scope and verification and compliance are summarized under their respective sections below. The exchange of views underlined the importance all delegations attached to multilateral consideration of a nuclear test ban. It was also welcomed as useful in laying the groundwork for the further consideration of the other two clusters of items that were taken up, namely, structure and scope; and verification and compliance.

11. The early re-establishment of the Ad Hoc Committee in 1991 was welcomed by all delegations as it gave ample opportunity for delegations to address the many political and technical issues of relevance to a nuclear test ban.

12. The Group of 21 continued to stress the need for the Ad Hoc Committee to be provided with a negotiating mandate. One delegation of the same group stated that it had joined the consensus for the re-establishment of the Ad Hoc Committee with a non-negotiating mandate only for 1991 and that if the Ad Hoc Committee was not provided with a negotiating mandate next year, it would be pointless to carry on a sterile exercise. Delegations of the Western group maintained that the current mandate of the Ad Hoc Committee allowed for genuine progress on the issues of a nuclear test ban.

13. There continued to be a general acceptance of the final goal of a nuclear test ban. However, differences remained on its timing and modalities. Many delegations of the Group of 21 stressed again that for them a nuclear test ban remained an absolute priority to halt the quantitative and especially the qualitative arms race, since they believed it would prevent the development of a new generation of nuclear weapons. For delegations of the Western group, a nuclear test ban remained a long-term goal and had to be seen in the context of the wider disarmament process. They pointed out that even without a nuclear test ban, at least two nuclear weapon States had begun a process of quantitative nuclear disarmament, viz., the INF Treaty and the cuts to be enacted under the START Treaty. It was clear to the delegations of the Group of 21 that what they considered a justified fear of the devastating consequences of the use of nuclear weapons had encouraged many States to advocate a halt to nuclear weapon tests. They pointed out that the achievement of a nuclear test ban was only a partial measure in the overall goal of complete nuclear disarmament, and its importance could not be belittled in this context. They added, however, their belief that cuts envisaged under START could actually lead to the modernisation of existing nuclear arsenals.

14. Many references were made to the recent political changes that have taken place in the world. Many delegations stated that the improved international climate held opportunities in the field of nuclear disarmament which should not be squandered. The INF Treaty and the recent signature of the START Treaty were encouraging signs of deep changes in this field. In the area of nuclear testing, many delegations welcomed the ratification of the USSR/United States Threshold Test Ban Treaty (TTBT) and the Peaceful Nuclear Explosions Treaty (PNET). Some delegations called upon the USSR and United States to continue the phased process of negotiations towards reducing the yield and number of their nuclear tests. The call to the two bilateral negotiators to continue the practice of providing the Conference on Disarmament with information on the status of their plans for future negotiations was reiterated.

15. Delegations of the Group of 21 recalled the numerous resolutions of the General Assembly adopted by overwhelming majorities over many years calling for an immediate halt to nuclear testing. They also recalled the many initiatives over the years on the subject, including the Six-Nation Initiative of 1986, which presented, in their view, a concrete offer for the adequate verification of a nuclear test ban. Many delegations of the Group of 21 stated that the convening in 1991, upon the request of one-third of the States Parties, of the first substantive session of the Amendment Conference of the Partial Test Ban Treaty also was an expression of the urgency attached to the achievement of a nuclear test ban by a vast majority of the international community. Some delegations of the Group of 21 suggested that the lack of agreement on a final declaration at the 1990 Fourth Review Conference of the Non-Proliferation Treaty was also a reflection of the concern of the majority of the States Party to that Treaty over the lack of progress towards the achievement of a nuclear test ban.

16. The security implications of nuclear testing were discussed, with particular emphasis on its relationship to nuclear deterrence. The NATO Declaration made in London in 1990 (see CD/1013) to the effect that the Alliance would reduce its reliance on nuclear weapons was recalled by those members of the Western group concerned. They stated that the NATO Alliance was reviewing its policy with respect to nuclear weapons, but that, for the

foreseeable future, NATO security would depend in part on such weapons. For that reason, NATO States continued to see a requirement to conduct tests to keep nuclear weapons safe, secure, reliable and up-to-date. It was also felt that prospects to reduce nuclear weapons to a minimum were good and that a concomitant reduction of nuclear tests to a minimum would follow. In this context, support for the step-by-step approach for the realization of a comprehensive test ban was again reiterated by delegations of the Western group of States.

17. In this context, most Western delegations committed themselves to the step-by-step approach, as a realistic approach for the achievement of a comprehensive nuclear test ban. They considered that the ratification of the TTBT and PNET together with the new verification Protocols represented an important step towards this goal and a partial fulfilment of this commitment. In their view, the step-by-step approach should reduce the quantity and yield of nuclear testing still further whenever political and technical conditions so allowed. They felt that it should be recognized that the Western nuclear powers already kept their nuclear test programmes to the minimum necessary to meet national security requirements and that, as a consequence, the overall number of nuclear explosions between 1983 and 1990 had already decreased to one-third of the initial level.

18. A nuclear weapon State belonging to the East European group expressed a continued commitment to the early achievement of a comprehensive test ban as not only a measure to curb the nuclear arms race, but an important means of promoting non-proliferation of nuclear weapons as well. Based on this assessment of the importance of the role of a nuclear test ban in world affairs, it was prepared to use all possible ways and means in order to reach its early resolution - be it through bilateral negotiations or multilateral efforts, through widening the scope of the 1963 Moscow Treaty or through a joint declaration together with the major nuclear weapon State belonging to the Western group on a nuclear tests moratorium. It held the view that a step-by-step approach to the achievement of a comprehensive ban was justifiable. It pointed to that approach in its bilateral negotations on nuclear testing with the major nuclear weapon State belonging to the Western group and stressed that the first goal of those negotations had been reached with the ratification of the Threshold Test Ban Treaty of 1974 and the Peaceful Nuclear Explosions Treaty of 1976 and their attached Protocols. It underlined support for a continuation of negotiations to consider further limitations on the quantity and yield of nuclear tests. It restated its conviction that a final resolution of the problem of stopping nuclear tests required focusing the efforts of the relevant multilateral bodies as well. In its view, bilateral and multilateral efforts may and should complement each other. It was of the opinion that such a representative forum as the Conference on Disarmament would also make its tangible contribution to the solution of this problem through its Ad Hoc Committee. It also considered that Draft Protocol II of Amendment to the PTBT and the submission of the revised Draft Comprehensive Test Ban Treaty by one delegation belonging to the Group of 21 as important steps towards a nuclear test ban.

19. A nuclear weapon State member of the Western Group reaffirmed that nuclear weapons continued to play a critical role in its national security strategy, as well as in the national security strategies of its allies. So long as this is the case, it stated that it must be free to conduct nuclear tests to ensure the safety and credibility of its forces. While a CTB remained a long-term objective, it believed that such a ban must be viewed in the context of a time when States do not need to depend on nuclear deterrence

to ensure international security and stability. It held that when broad, deep, and effectively verifiable arms reductions, substantially improved verification capabilities, expanded confidence-building measures, and greater balance in conventional forces was achieved, a CTBT could be attainable. This State believed that the best way to address the threat posed by nuclear weapons and to further the aims of nuclear arms control was through the reduction of nuclear weapons. It maintained that the the recent signing of the START Treaty represented a major achievement in securing a more stable, predictable balance at lower levels of nuclear force. It noted that the agreement included a major reduction in the most destabilizing and dangerous weapons, land-based ballistic missiles and their warheads, and placed restrictions on specific types of strategic weapons and that a further important aspect of the START Treaty was its contribution to increasing predictability and transparency. It believed that unlike the START Treaty, a CTB would not result in any reduction in existing arsenals, nor deal with the threat posed by nuclear weapons. It pointed out that contrary to the beliefs of some, even the most effective seismic monitoring system was only one element of effective verification. It reaffirmed that the question should be dealt with on the basis of a step-by-step approach. It welcomed the re-establishment of the Ad Hoc Committee with a non-negotiating mandate, and stressed that it would contribute fully as well as share the results of its research in relevant technologies.

20. Another nuclear weapon State belonging to the Western group stated that it undertook nuclear tests because, with its NATO Allies, it believed that war was best prevented by keeping a sensible mix of conventional and nuclear weapons which would present any possible aggressor with risks out of proportion to any possible gain. Its nuclear forces represented the minimum required for preventing war; to be a sure deterrent, they must be kept effective and up-to-date and for the present that required testing. It therefore supported a comprehensive ban on all nuclear tests only as a long-term goal.

21. Yet another nuclear weapon State not belonging to any group restated that it understood the urgent desire of the Third World countries and the non-nuclear-weapon States for a nuclear test ban at an early date. It reiterated the importance that it attached to the issue of a nuclear test ban in the context of its continued stand in favour of the complete prohibition and thorough destruction of all nuclear weapons. It again repeated that in order to stop the nuclear arms race and achieve nuclear disarmament, the two States possessing the largest nuclear arsenals should take the lead in halting the development, production and deployment of all nuclear weapons and drastically reducing their nuclear arsenals. It welcomed the constructive discussions in the Ad Hoc Committee, in which it would continue to participate and take an active part.

22. The Group of 21 delegations expressed the view that since the Cold War had ended and in the light of some of the political and security changes underway in Europe, the reasons for reliance by some States on nuclear deterrence seemed no longer valid. The Group maintained the position that nuclear deterrence cannot ensure international security and stability, particularly in the context of the new positive international climate. A nuclear weapon State belonging to the Western Group said that the significance of nuclear weapons in its nuclear deterrence doctrine and that of its allies had evolved over the years in response to changing requirements. It stated that the collective thinking in the Atlantic Alliance about nuclear weapons had undergone a shift in response to the dramatic political and military

changes in Europe over the past two years. It pointed to the most recent evolution in their approach, the new strategy recorded in the London communiqué of 5-6 July 1990 (see CD/1013), in which nuclear forces would be truly weapons of last resort. It added that major developments cannot be predicted in today's world which is characterized by great uncertainty nor could future security requirements be predicted; political, economic, and social changes had unleashed forces whose effects were not foreseeable.

23. Delegations of the Group of 21 continued to stress that the central purpose of nuclear testing was the modernization of nuclear weapons. In particular, they felt that a comprehensive nuclear test ban would help to halt the next round of the vertical nuclear arms race, namely, the development of "third" generation weapons or "directed energy" weapons. They felt that, while horizontal proliferation was a hypothetical possibility, there were well-documented facts regarding vertical proliferation of nuclear warheads and infrastructures of the nuclear weapon States. They believed also that the spatial spread of arsenals and infrastructures to the high seas and the territories of countries far removed and the extension of at least the infrastructure to outer space had totally nuclearised the globe. They felt that a general acceptance had developed that a nuclear test ban would stem proliferation both vertically and horizontally and serve to fulfil genuine and universal non-proliferation concerns.

24. A nuclear weapon State belonging to the Western group held the view that a nuclear test ban would not be a guarantee against horizontal nuclear non-proliferation as it was possible that a first generation nuclear device could be developed without testing. Furthermore, it also held the view that, even without a halt to testing, the numbers of nuclear weapons were being reduced. It also questioned the statement that a halt to nuclear testing would stem the development of a "third" generation of nuclear weapons since, in its view, such a development would represent a quantum leap into new technology. It stated that nuclear non-proliferation was best addressed through regional cooperation in peaceful nuclear programmes as well as through effective international controls over nuclear weapons technology and materials.

25. Some delegations of the Group of 21, States Party to the NPT, reiterated the importance they attached to the strengthening of that Treaty. Comments were made on the results of the Fourth Review Conference of the Treaty held in 1990. They reiterated again the historical link between progress on nuclear disarmament and towards a nuclear test ban and the future extension of the Non-Proliferation Treaty beyond 1995, and the commitments made by nuclear weapon States were recalled in detail by delegations of the Group of 21. As a contribution to the discussion, a background paper on the historical link between nuclear disarmament measures and the extension of the Treaty was presented to the Ad Hoc Committee (see CD/NTB/CRP.10) by one delegation of the Group of 21. Some delegations of the Western group of States felt that the frustration experienced by some Parties to the Treaty over the question of a nuclear test ban, which was reflected in the inability of the Conference to adopt a final declaration, should be redressed by dialogue on the subject and not by confrontation. Some delegations of the Western Group of States stated that no such commitments as mentioned by the Group of 21 had been made and that there should be no link between a nuclear test ban and the extension of the Non-Proliferation Treaty.

26. The nuclear weapon States were asked whether they could provide a breakdown of data, based on published results, on their nuclear testing which would indicate separately the number of tests conducted/needed for development of weapons or for stockpile reliability. In response, they explained that a breakdown of data on nuclear testing could not be easily categorized.

27. The proposal in the Six-Nation Initiative for a moratorium on nuclear weapon testing pending the conclusion of a comprehensive test ban treaty was recalled by delegations of the Group of 21.

28. Views were expressed on the Amendment Conference to the 1963 Partial Test Ban Treaty which took place in January this year. It was felt by the Group of 21 delegations Party to the Partial Test Ban Treaty that developments from the Conference should be taken into account and, in particular, there should be a discussion on the Draft Protocol II on verification of the proposed amendment to the PTBT, presented to that Conference and subsequently to the Conference on Disarmament by Indonesia, Mexico, Peru, Sri Lanka, Venezuela and Yugoslavia in document CD/1054. Some comments made on the Draft Protocol are summarized under the Verification and Compliance section. It was stated by the Group of 21 delegations Party to the PTBT that progress in the Ad Hoc Committee would be a test of those delegations which had participated in the Amendment Conference and which had pledged their readiness to pursue a debate on a comprehensive test ban through the Conference on Disarmament.

29. Discussions also focused on the possible negative effects of nuclear testing on health and the environment. Many delegations, members and non-members of the Conference, expressed the view that recent reports pointed to concerns over environmental and health effects in regions where nuclear tests were carried out. In that connection, several references were made to the report of the United Nations Secretary General containing a comprehensive update of the Comprehensive Study on Nuclear Weapons (A/45/373) and other reports and articles. One delegation of a nuclear weapon State belonging to the Western group stated that the entry into force of the Partial Test Ban Treaty, and the adherence to its terms by two other nuclear weapon States to conduct underground tests, combined with the sophistication of technology for containing underground tests, had minimised concern over negative environmental effects. It referred to the 1989 Report of the United States Office of Technology Assessment, which explained that all its testing is performed under rigidly controlled conditions to minimise the potential impact of the tests on the environment and on public safety. The Group of 21 expressed the view that the goal of the Committee was not to seek clean nuclear underground tests and, therefore, environmental and health concerns related to underground testing should not take precedence over the political goal of a nuclear test ban treaty since the major objective of such a treaty was to prevent the production of a new generation of nuclear weapons.

30. One delegation of the Group of 21 put forward a draft Comprehensive Test-Ban Treaty (see CD/1089 and CD/NTB/WP.14), which was a revised and considerably extended version of a draft Treaty submitted by the same delegation in 1983 (CD/381). This delegation stated in the course of introducing its proposal that the new draft was put forward against a background of recent improvements in the international climate. It stressed that the General Assembly of the United Nations had year after year underscored the urgent need for a comprehensive nuclear test ban treaty. It maintained that an end to nuclear testing would be a clear manifestation of a genuine will to pursue nuclear disarmament and would be a way of curbing horizontal and vertical proliferation. It felt that there was also widespread concern about the collateral effects of nuclear testing. It stated that the draft submitted was intended as a basis for consideration in the Ad Hoc Committee and in due course as an input to negotiations. It underlined that the new draft had taken into account rapid scientific and technological developments. It pointed to the major changes had been

undertaken with regard to the Protocols, dealing with a verification system and organizational matters. It believed that technical achievements in the field of verification were such that effective international verification of a CTBT was possible. It also considered that given a political preparedness to conclude a CTBT, the effectiveness of the verification régime was largely a question of the amount of resources allocated for the purpose. It pointed to the measures contained in the draft Treaty, such as seismic monitoring, surveillance of airborne radioactivity, satellite observations and on-site inspection, aimed at establishing an effective verification system. It also pointed to the operational manuals the draft Treaty proposes to be established to guide the operation of the various components of the verification system. It also described the proposed Organization of the draft Treaty, which was to oversee the overall functioning of the Treaty and its verification arrangements: it was proposed to consist of the Conference of the States Parties as the principal organ; the Executive Council as the executive organ of the Conference to promote the practical implementation and operation of the Treaty and its verification arrangements; and a Technical Secretariat to conduct the day-to-day operation of the Treaty. The Ad Hoc Committee offered preliminary comments on this document. A number of delegations welcomed the proposal as an important contribution to the future work of the Ad Hoc Committee. One Western nuclear weapon State questioned whether the scope and the definition of a nuclear weapon State contained in the draft treaty effectively addressed the concerns raised in the Ad Hoc Committee. Other delegations stated that if a definition were to be attempted there would always be a possibility of a certain category being excluded which would be detrimental to the treaty in the future. As to the issue of a definition of a nuclear weapon State, those delegations also stated that another relevant Treaty already contained such a definition, which was why it was retained in the draft Treaty presented.

Structure and Scope

31. For delegations of the Group of 21, "Structure" meant dealing with the following elements, inter alia:

- Preamble
- Scope
- Verification
- Compliance
- Organization.

Furthermore, they felt that these elements were interrelated and should be dealt with as such. Provisions of existing multilateral and bilateral instruments could be taken into account for this purpose. It was mentioned that the structure could consist of three basic elements, namely, the scope of the instrument as such, the link between States Parties to the instrument and consistency with the verification system for the treaty, matters relating to the duration of the instrument as well as the question of the depository. The possibility of up-dating the structures of the treaty in tune with developing needs was advanced.

32. Delegations belonging to the Western group stated that the structure of a future nuclear test ban treaty was part and parcel of negotiations on a nuclear test ban. Hence, they reiterated that it was inappropriate to discuss this question at the stage which the Ad Hoc Committee had reached in its discussions. However, they underscored that the Ad Hoc Committee could consider the various elements that would form a part of eventual negotiations on the subject.

33. As to the scope of a future nuclear test ban treaty, some delegations of the Group of 21 stated that it was clearly spelt out in the Preamble of the Partial Test Ban Treaty of 1963 and should contain the following three elements:

i) it should cover all States including the five existing nuclear weapon States;

ii) it should extend the prohibition on testing of nuclear weapons to the underground environment;

iii) it should do so for all time.

Reference was made to the agreement contained in the Trilateral Negotiators Report of 1980 (CD/130 of 30 July 1980) with respect to the scope of a future nuclear test ban treaty. Some delegations belonging to the Group of 21 stated that during the earlier consideration of a comprehensive test ban treaty, peaceful nuclear explosions had always been assigned a separate role. Also, the original intention of the PTBT clearly was to maintain a dividing line between nuclear explosions for military purposes, which were to be prohibited entirely and nuclear explosions for peaceful purposes, to be allowed under certain conditions. All the existing international agreements which referred to nuclear tests contained separate provisions for peaceful nuclear explosions. These delegations expressed the view that the scope of a future treaty should be consistent with what the Preamble of the PTBT seeks to achieve and to ensure that the majority of nations were not denied the full benefits of technological advancement in the nuclear field, while a handful of States were left free to do so. The interests of the non-nuclear weapon States had to be taken into account on the basis of complete equality with the interests of the nuclear weapon States. In this context the provisions contained in the Treaty of Tlatelolco, and the Threshold Test Ban Treaty and Peaceful Nuclear Explosions Treaty, suggesting differentiation between nuclear explosions for military purposes and peaceful nuclear explosions, were specifically recalled by some delegations of the Group of 21. Another delegation of this Group stated that with regard to the Structure and Scope, as to what a CTBT could be, in principle, it should be total, but it should not close the door definitively to possible peaceful use if this is seen to be necessary in proper environmental and security conditions that would not harm the position of any State.

34. Delegations belonging to the Western Group of States underlined that the technology for a peaceful nuclear explosion was indistinguishable from an explosion for military purposes. They discussed at length the early optimism which existed on the potential uses of nuclear explosions for peaceful purposes and described the large number of explosions that were conducted to try and demonstrate their feasibility. The conclusions reached by them were that peaceful nuclear explosions were not economically nor environmentally feasible. They pointed out that peaceful nuclear explosives were sophisticated and that the physics, technical know-how, and nuclear materials required were quite similar to those required for military nuclear explosives, in that size, compactness, and rugged designs were stated goals for both peaceful and military explosives. They brought to the Ad Hoc Committee's attention the conclusions reached by many experts including those from the United Nations Comprehensive Study on Nuclear Weapons (A/45/373) which concluded that five major arms limitation and disarmament treaties attest to the similarity of nuclear explosive devices for military and for peaceful purposes.

35. It was suggested by some delegations belonging to the Western group that the Ad Hoc Committee might need to elaborate the definition of a nuclear explosion, with the advice of technical experts. Several delegations belonging to the Group of 21, however, pointed to the complexities involved in the possible development of an agreed definition of nuclear explosions. They stated that if a definition was attempted, there would always be the possibility of a certain category being omitted, which could cause difficulty for the treaty régime at a later date, and that it was not necessary to do so. Some delegations of the Western Group of States stated that a definition of a nuclear explosion was critical to the discussion on the nuclear test ban issue. The questions of computer simulations, laboratory tests and contained nuclear explosions were also discussed. In this respect, a delegation of the Group of 21 stressed the importance of peaceful nuclear explosions and their technical and economic value and the need to keep open in any multilateral agreement the utilization of computer simulations, laboratory tests and contained nuclear explosions.

36. It was suggested by some delegations belonging to the Group of 21 as well as to the Western group that the question of agreeing on the lowest verifiable limit, i.e. threshold of nuclear explosions, be taken up. The view was expressed that this issue was directly linked to the consideration of verification of a nuclear test ban. It was suggested in this context by some delegations of the Group of 21 that even a one kiloton threshold would seriously impair the development of a third generation of nuclear weapons. One delegation presented examples of what could be achieved in the laboratories below the one kiloton threshold. It stated that the Ad Hoc Committee had also to take into account other research programmes like the Inertial Confinement Fusion Programme and the sensitivity of that technology. In this context, the research relating to the x-ray laser, nuclear kinetic energy weapons, optical laser, microwave beams as well as particle beams was referred to. Some delegations of the Group of 21 suggested that t[illegible]cal advice could be obtained from the Ad Hoc Group of Scientific Experts on the verifiability of certain thresholds for a nuclear test ban treaty.

Verification and Compliance

37. Divergent views were expressed by delegations as to whether all the technical pre-requisites were available today to effectively verify a total test ban. While acknowledging the technical aspects of the issue, many delegations of the Group of 21 believed that the resolution of the issue of verification was rather political in nature. They noted that the ongoing work of the Ad Hoc Group of Scientific Experts has provided concrete evidence that a nuclear test ban was verifiable using technology currently available. Other delegations stressed that there are many detailed, technical issues that still needed to be resolved for an effective global monitoring of a nuclear test ban.

38. A nuclear weapon State of the Western group suggested that the Ad Hoc Committee consider the means that currently exist to verify the 1974 Threshold Test Ban Treaty and the 1976 Peaceful Nuclear Explosions Treaty compared with what would be required to verify effectively a comprehensive nuclear test ban treaty. It underlined that verification Protocols to the TTBT and PNET took almost three years of intensive bilateral negotiations. It recommended that delegations examine these lengthy and complex technical Protocols which were distributed as official documents to the Conference as CD/1066 and CD/1067, respectively. It stated that the Protocols were unprecedented in nature and

complexity, and noted that the provisions in these Protocols still had to be implemented. It stressed that the task of verifying the TTBT would be minor compared to verification of a CTBT. It stated that verification of the TTBT required an extensive on-site presence, deployment of a highly sophisticated and complex array of instrumentation, and detailed knowledge of the test location and its geological environment. It underscored that verification of a CTBT, on the other hand, would involve global rather than local monitoring and analysis of any and all measurable explosions or disturbances. It added that this would be followed by the complex task of screening to distinguish nuclear test explosions from earthquakes, chemical explosions, and other phenomena. Based on this State's analysis, the means did not currently exist to verify a CTBT adequately. It stated that such a programme of verification would dwarf the current TTBT régime in terms of scale and complexity.

39. The starting point for the debate was the question of the scope of an eventual agreement, specifically, the levels of the yield of explosions that could be agreed in order to create political confidence that a ban was being complied with. Delegations of the Western group of States held that this aspect depended upon politico/military decisions of States with respect to their national security concerns. Differing views continued to be expressed as to what should be the yields of explosions that would allow for not only their detection but also for their identification as nuclear explosions. Some delegations of the Western group expressed the view that there still existed possible evasion techniques, such as, cavity decoupling and the masking of explosions during earthquakes, the verification methods for which could not yet give full confidence. The Group of 21 delegations maintained that such techniques tended toward the impractical, that these types of explosions would eventually be detectable by non-seismic means and that it was also impractical to work for a 100% foolproof verification system. One delegation belonging to the Western group and one delegation non-member of the Conference, in their working paper (CD/NTB/WP.13), mentioned that the technology to attempt such evasions was unlikely to be available outside the existing nuclear weapon States, and the risk of detection would be extremely high and would increase with each test. These two delegations maintained that attempts to evade a nuclear test ban would be confined to a level at which the military advantages to be gained from clandestine explosions would be minimal and the chances of escaping detection would be extremely low.

40. Some delegations of the Western group suggested a step-by step approach which would gradually reduce the threshold levels of explosions at successively verifiable levels, as a way of ensuring confidence in a global test ban. A number of States of the Group of 21 expressed the view that even a one kiloton ceiling would seriously impede the development of a new generation of nuclear weapons. This would curtail, in their view, the qualitative 'improvements' in nuclear weapons and render further refinements in the size, yield or yield to weight ratio of nuclear weapons nearly impossible. They also maintained that it would reduce the likelihood that potential 'first' strike weapons would be built. Also raised was the issue of laboratory or contained tests at very low yields and whether new verification techniques would need to be developed in order to deal with them. Some delegations of the Group of 21 stated that while laboratory research and development of new weapons designs might continue, the inability to test the performance of new designs would inhibit States from accepting such weapons into their arsenals. They added that gradually the verification régime of a nuclear test ban treaty could be made more comprehensive and foolproof. A nuclear weapon State of the Western group asserted that a one

kiloton explosion could still provide valuable nuclear weapons development information. The same State added that, even if a one kiloton threshold were ever to be achieved, this would not be effective in precluding the development of nuclear weapons.

41. Some issues involved with nuclear testing in other environments besides underground were raised by some delegations of the Western group. Comments were made on the feasibility of verification of nuclear tests if they were conducted in outer space, in the atmosphere or under water. A suggestion was made by one delegation of the Western group that feasibility studies might be conducted in this regard. The importance of seismic means of verification was stressed once again and it was pointed out that a strong capability in the seismic verification field was already available and could be improved further. Views were aired by delegations of all groups that non-seismic means of verification would also be required in order to adequately monitor an eventual nuclear test ban. Methods such as radio-active surveillance of the atmosphere, hydro-acoustic monitoring, satellite photo-imaging and on-site inspections were cited. It was stated that an eventual combination of these means could provide a reliable verification system.

42. It was felt by many delegations that the Ad Hoc Committee should take up the issue of the future activities of the Ad Hoc Group of Scientific Experts To Consider International Cooperative Measures to Detect and Identify Seismic Events after the Ad Hoc Group presents a report on its second major technical test (GSETT-2) during the 1992 session. Differing views were expressed on the mandate of the Ad Hoc Group and on the future directions the Ad Hoc Group could take. It was recalled that any changes in the mandate of the Ad Hoc Group were in the purview of the Conference on Disarmament. Many views were aired about the possible future tasks of the Ad Hoc Group within the existing or a revised mandate: inter alia; the design of a system with one International Data Centre (IDC) and not four; the preparation of preliminary operational manuals; further research on use of waveforms at IDCS; the establishment of in-country stations; the estimated capabilities of a global seismic monitoring system. Other techniques were also mentioned: the monitoring of atmospheric radioactive nucleides; on-site inspections, on-site monitoring of large non-nuclear explosions and satellite images interpretation. Other views were aired that the Ad Hoc Group was not the group to make recommendations on future work in areas other than seismic and that further discussion was needed within the Ad Hoc Committee on how non-seismic technical verification issues should be handled. It was suggested by some delegations that the Ad Hoc Committee worked in parallel with the Ad Hoc Group and recommendations for the future work of the Ad Hoc Group needed to come both from the Ad Hoc Group itself and from the Ad Hoc Committee, as two distinct organs of the Conference, working towards the same goal.

43. Some views were expressed concerning the institutional arrangements that would need to be made in connection with a verification régime. Some delegations of the Western group were of the view that a discussion of institutional arrangements was still premature in light of the need to agree on the scope of a nuclear test ban agreement and the related verification requirements. Some specific proposals were put forward and were commented upon. Some delegations of the Group of 21 felt that national data centres, already elaborated upon by the Ad Hoc Group of Seismic Experts, could perform a multitude of technical functions and procedures, and could therefore serve as a basis for a national body which would also handle political aspects such as complaints and on-site verification.

44. Some comments were made on the Draft Protocol II of Amendment to the Partial Test Ban Treaty. They concerned: terminology and definitions; the functions and structure of the Secretariat; an operational governing body; more detailed non-seismic verification; aspects of the inspection procedures; the establishment of different monitoring thresholds for different Parties to the agreement; cost-effectiveness of the proposed institutions; and the specific application of provisions for States Parties. The six co-sponsors of the PTBT Amendment Conference initiative indicated that they had been encouraged by the discussion in the Ad Hoc Committee of Draft Protocol II on verification and compliance and stated that parallel verification mechanisms with respect to each of the possible environments would create a costly and imbalanced verification régime, and such a subdivision could only be undertaken, provided there is agreement on the required level of verification with respect to environments other than underground. They were ready to consider the suggestion to broaden the mandate of the Ad Hoc Group of Scientific Experts in order to encompass other verification methods. They stated that the work of the Ad Hoc Committee and the process of achieving a comprehensive test ban treaty through the amendment of the 1963 Partial Test Ban Treaty should complement each other. A number of Western delegations expressed clear reservations about some aspects of Draft Protocol II. They were concerned in particular about the threshold for verification, adequacy of seismic array, the on-site inspection provision and the role and composition of the Secretariat.

IV. CONCLUSIONS AND RECOMMENDATIONS

45. It was generally recognized that discussions held in the Ad Hoc Committee this year had touched upon the major issues of a nuclear test ban in considerable detail. The debate was considered useful in preparing the ground for future in-depth consideration of the issues reflected in this report.

46. The Ad Hoc Committee noted with appreciation the participation of the Ad Hoc Group of Scientific Experts to Consider International Co-operative Measures to Detect and Identify Seismic Events at a meeting of the Committee. The ongoing work of the Ad Hoc Group was commended and it was felt that the results of the second major technical experiment recently concluded by the Ad Hoc Group, (GSETT-2), would make an important contribution to the issues addressed by the Ad Hoc Committee on seismic verification mechanisms.

47. The Ad Hoc Committee agreed that substantive work on agenda item 1 should continue at the 1992 session of the Conference and, accordingly, recommended that it should be re-established at the beginning of the 1992 session.